Synopsis

Ph.D in Human Development

Effectiveness of Music and Meditation on PsychologicalStatus of Pregnant Women in Lakhimpur District, Assam

By

Sharanoor Hussain

Ph.D. Scholar (19PHHDF003)

Supervisor

Dr. Priya M.

Asst. Professor (SS) & HoD (i/c)

Department of Human Development

Submitted to

Avinashilingam Institute for Home Science and Higher Education for WomenCoimbatore, Tamil Nadu- 641043

January, 2024

INTRODUCTION

Pregnancy is a period characterized by physical, hormonal, and emotional changes (Lima et al., 2014). Pregnant women are especially affected by stress and anxiety during pregnancy,childbirth, and the postpartum period (Schetter & Tanner, 2012). Several types of research suggest that mindfulness-based interventions can be beneficial for outcomes such as anxiety, depression, perceived stress, and levels of mindfulness during the prenatal period (Dhillon et al., 2017). Some evidence suggeststhat learning and practicing mindfulness skills such as meditation and relaxation techniques during pregnancy may improve both a mother's symptoms of depression and a baby's weight at birth (Nyklicek et al., 2018). In a study among anxious pregnant women, meditation and relaxation trainingreduced rates of low birth weight, cesarean section, and instrumental extractions (Bastani et al., 2005). Listening to music does wonders to alleviate stress, and it has always been a great healer ((Kalaivani, 2011). A study with pregnant women who listened to music before amniocentesis showed that it reduced both state anxiety and cortisol levels (Ventura et al., 2012) while an intervention that involved pregnant women learning to sing lullabies during pregnancy was found to aid emotional expression, reduce the amount of self-reported anxiety, and contribute to a positive experience during pregnancy (Carolan, et al. 2012). Many types of research support the positive effects of music therapy applied during pregnancy on reducing anxiety and stress (Chang & Chen, 2005; Laopaiboon et al., 2009).

Research gap

In previous studies in the analysis of music during pregnancy, anxiety was reduced by the music selected by the investigator and not from patient preference. There is no evidence on music intervention, gestation age, type of music and parameters. So, the present study focuses on combination of music intervention including Nature's music, Instrumental, Indian Classical Music/ Garbha Mantra, Bollywood music, Folk Music and Lullabies to see its effectiveness on pregnancy psychological status in all the trimesters.

In previous studies various interventions including psychotropic medication, counseling, and relaxation therapies showed improvements in psychological well-being of pregnant women particularly with traditional meditation techniques in the third trimester addressing anxiety and depression. However, existing studies have methodological flaws, like lacking control groups and trimester wise meditation intervention which measures its impact among pregnant women.

Scope of the study

- The present study focuses on influence of music and meditation to bring positive mindset and wellbeing of pregnant women.
- Evidence suggests that meditation and music as an intervention has a strong relationship to positive health outcomes, overall well-being and adjunctive treatment for diseases
- Since emotions and experiences of pregnant women negatively influence the development of the growing fetus and it can have detrimental effects on children for the rest of their lives
- These interventions encourage practice of awareness and acceptance of one's thoughts, emotions and body sensations, building stress tolerance, avoidance of uncomfortable experiences during pregnancy and helps to manage pregnancy related stress, anxiety and happiness, family relationships, physical health and one's body image which intern benefit pregnant women's psychological wellbeing.

Novelty of the study

- The study has developed a tool to assess the psychological status of pregnant women which was not available in India. The tool is designed to support community facilitators and healthcare providers as an assessment tool for pregnant women's psychological health for providing treatment/counselling to improve their well-being based on the results.
- The study was carried out in Lakhimpur District of Assam where there was no records or publications been found based on meditation and music therapy among pregnant women.
- The study's samples were chosen from the first trimester to till the third trimester and intervention was carried out throughout especially during post pandemic.

Objectives of the study

The primary and secondary objectives of the present study are as follows:

Primary Objective:

- To assess the effectiveness of Music and Meditation on psychological status of pregnant women

Secondary objectives:

- To know the socio-demographic profile of the selected pregnant women.
- To assess psychological status and its dimensions among pregnant women based on socio-demographic profile.
- To plan music and meditation interventions for selected pregnant women.

- To apply intervention package on selected pregnant women.
- To compare the effectiveness of intervention among pregnant women's psychological status.

Hypotheses

$H0_1$: There would be no significant difference in the psychological status and its dimensions among pregnant women based on socio-demographic profile.

$H0_2$: There would be no significant difference in the psychological status of pregnant women in meditation control and experimental group.

$H0_3$: There would be no significant difference in the psychological status of pregnant women in music control and experimental group.

$H0_4$: There would be no significant difference in the psychological status of pregnant women in 1^{st}, 2^{nd} and 3^{rd} trimester after intervention.

REVIEW of LITERATURE

National reviews

- **Kumari** *et al.* **(2017**) reviewed yoga and pranayama during pregnancy and the finding indicated that improvements were observed in psychological domains during pregnancy and labor. The study suggests pranayama is the best pregnancy exercise during pregnancy time and can easily lead to normal delivery.
- A study conducted by **Kumari & Acharya (2018)** had shown the effect of music therapy on Hamilton Anxiety Score in pregnant women and found that music therapy is a beneficial therapy for anxiety.
- **Kulkarni** (2018) provided music therapy to the selected pregnant women by using spiritual, instrumental, Darbari Kanada Raga at the desired time and music therapy showed marked improvement in pregnant women.
- A study conducted by **Sarojini (2020)** concluded that the Mindfulness-based stress reduction program reduced the stress in pregnant mother's daily life and brought a sense of calmness in their life and prevent the occurrence of postpartum blue after pregnancy.
- **Ramesh** *et al*. (2020) found that music therapy is helpful as an effective coping strategy for first-time mothers and helps them in establishing lactogenesis and helpful in enhancing the maternal breastfeeding satisfaction levels.

International reviews

- **Nwebube** *et al*. (2017) found that music during pregnancy is a potentially enjoyable, inexpensive, and non-stigmatizing intervention that may also be beneficial for the future

child.

- **Yuksel** *et laal.* (2017) found that breathing exercises with deep inhalation and exhalation in pregnant women effectively reduce the perception of labor pain and shorten the duration of the second stage of delivery.
- **Novelia** *et al.* **(2018)** revealed that meditation or yoga relaxation affected reducing anxiety levels among pregnant women in the third trimester.
- **Eren** *et al*. **(2018)** found that that music therapy reduces the physiological and cognitive responses of anxiety among pregnant women undergoing multiple cesarean sections, and can be used in clinical practice.
- **Teckenberg-Jansson** *et al.* **(2019)** found that live music therapy helped the women to relax especially for women suffering from pregnancy complications and relieves stress which promotes the wellbeing of the mother and the fetus.

METHODOLOGY

Sample and Area

A total of 300 first trimester pregnant women were selected from government and private hospitals of the Lakhimpur district of Assam through **purposive sampling** technique. Prior permission/consent was obtained from the pregnant women, her family, and from hospital authorities. There were 5 hospitals including one government and four private hospitals as well as 3 Sub-centres (PHCs) were selected to conduct the study. The researcher applied inclusion and exclusion criteria for sample selection.

Criteria for sample selection

After screening eligibility criteria, Inclusion criteria involves pregnant women of 1st trimester, between the age group of 18-40 years with first/second/third pregnancies. Whereas, in exclusion criteria, the respondents were eliminated based on their unwillingness to participate, under 18 years of age and above 40 years, having previously participated in the pilot study and places other than Lakhimpur.

Method

The present study employed quasi-experimental research design with purposive sampling method with initial 300 pregnant women, out of which 120 pregnant women were selected who are under moderate and low psychological status by adopting inclusion-exclusion criteria. The participants were divided into control (n=60) and experimental (n=60) groups, further randomized into music and meditation intervention subgroups. Meditation sessions were conducted weekly for five months at Anganwadi centres, covering breathing exercises, relaxation techniques, and various pranayama. Simultaneously, online music sessions were provided for five months, including

nature music, instrumental, folk music, Garbha Mantra, classic Hindi Instrumental Music, and lullabies. Pre-recorded music underwent expert review for refinement. Pregnant women's psychological status was assessed through 'Pregnancy Psychological Status Scale' each trimester. The study demonstrated the effectiveness of both interventions, emphasizing their positive impact on the psychological well-being of pregnant women.

Pregnancy Psychological Status Scale (PPSS)

The psychological status of pregnant women was assessed before and after the intervention program. The assessment was done with the help of a self-constructed tool named 'Pregnancy Psychological Status Scale' which was designed by referring to State-Trait Anxiety Inventory (STAI) by Spielberger and Diaz-Guerrero (1976), Psychological Well-being (42 items) (Ryff, 1989) tools based on psychological status and psychological conditions during pregnancy. The tool has 40 statements in seven dimensions, namely happiness (4 items), stress (10 items), anxiety (7 items), Family Relationship (5 items), Socialization (4 items), Physical Health (6 items), and Body Image (4 items). A 4-point Likert scale was adopted to respond to each statement: often, sometimes, rarely, and never. Pregnant women with higher scores exhibit better psychological status, while those with lower scores demonstrate poorer psychological status. The maximum score for the tool is 160, and the minimum is 40. The tool was subjected to Cronbach's alpha tests, and the value was 0.71. At the time of intervention, the samples were divided into control and experimental groups. The assessments were performed at baseline, after the sixth and eighth months of pregnancy.

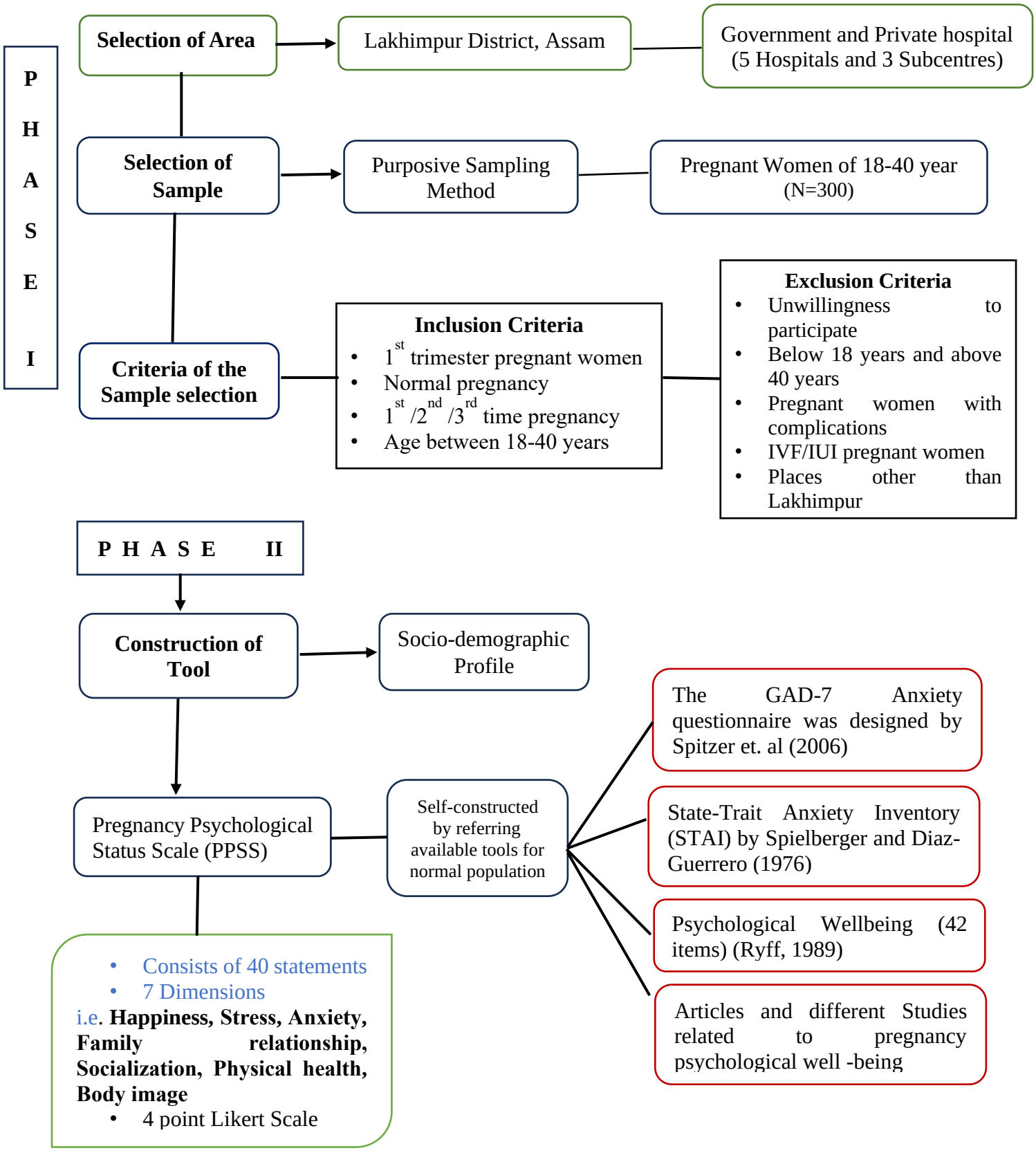
Implementation of intervention

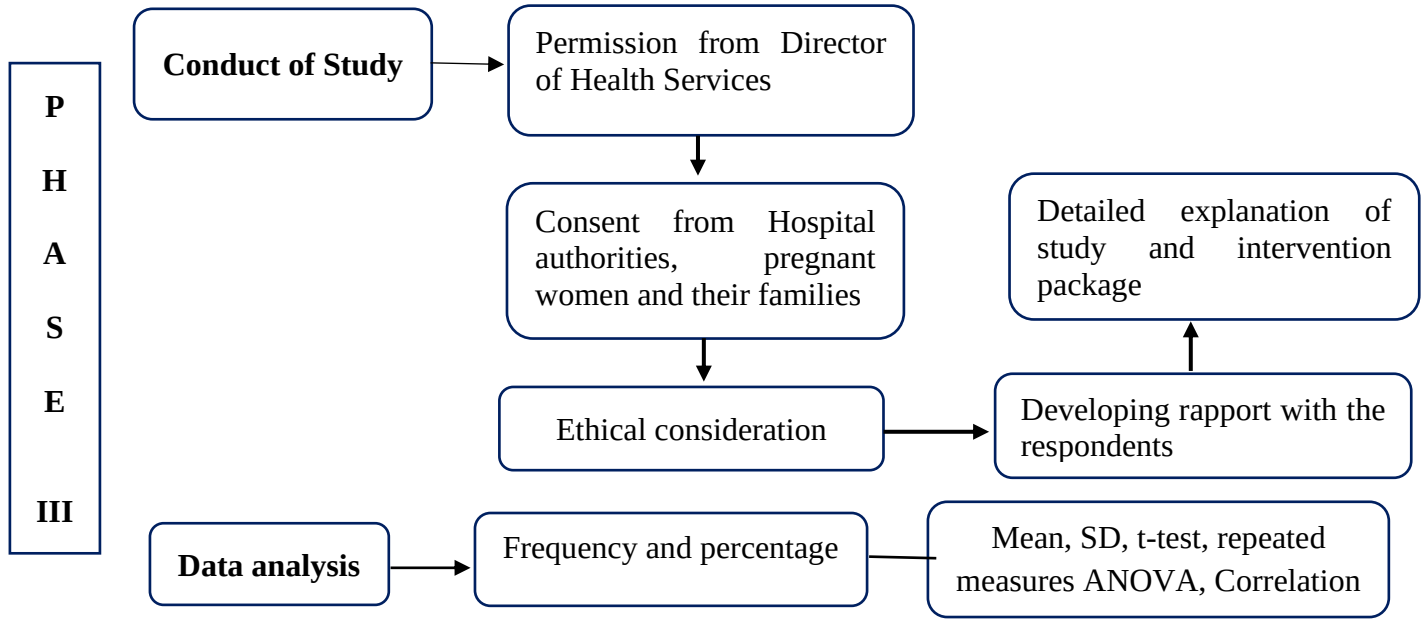
Meditation therapy, conducted offline once a week till the eighth month, encouraged participants to practice at home, gradually increasing from 15-20 minutes. Monitoring used a sign-off sheet, with weekly progress assessments, feedback, and interactive activities. The researcher's meditation diploma facilitated program execution. The music intervention, initially online due to COVID-19, included daily WhatsApp uploads for consistent exposure. Varied music themes were presented weekly, with intermittent offline sessions. Bi-weekly Google Meet sessions monitored progress. Music CDs and sign-off sheets aided follow-ups, and psychological status was assessed through the Pregnancy Psychological Status Scale each trimester for both control and experimental groups.

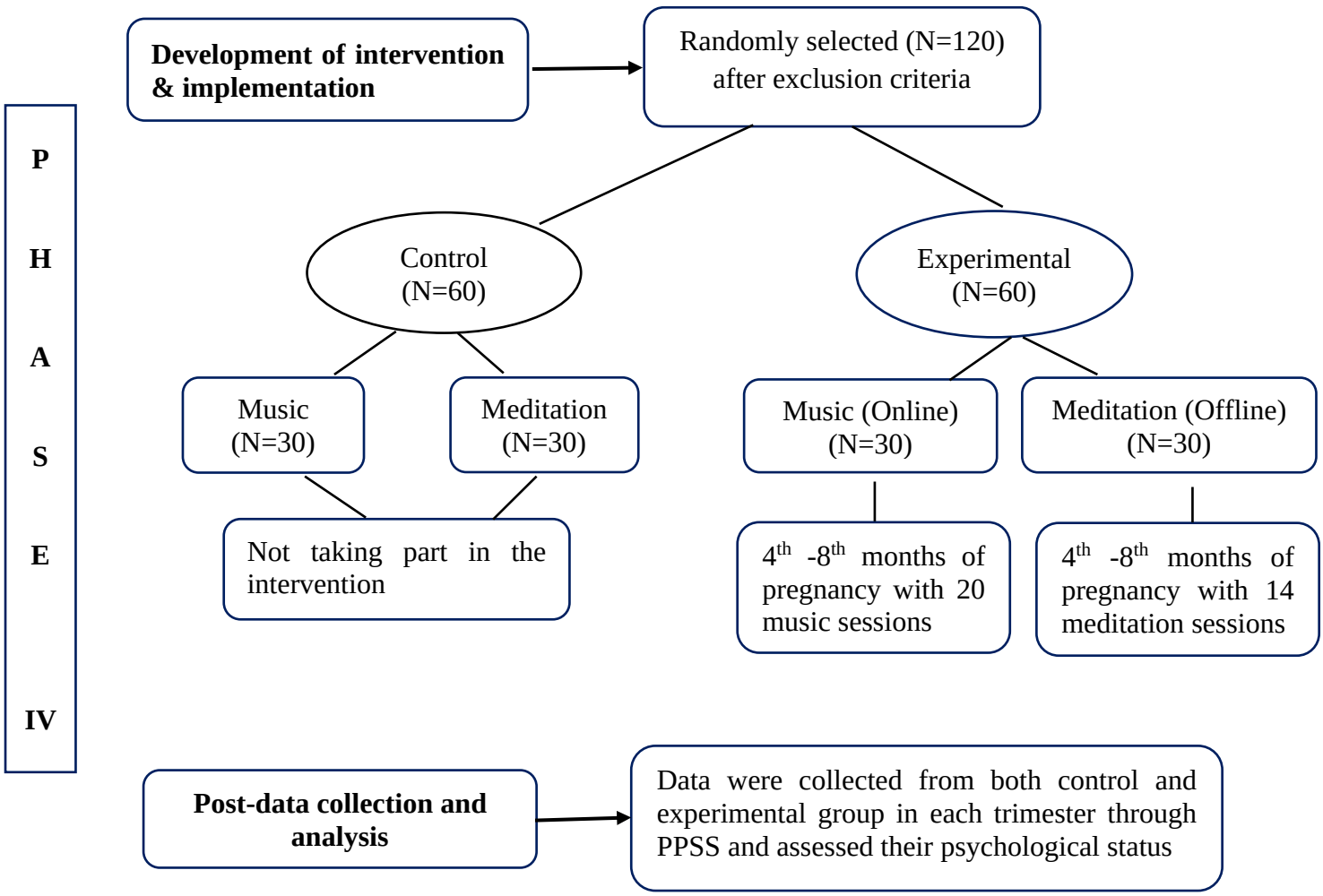
Statistical analysis

The collected data exhibited a normal distribution, enabling the utilization of both descriptive and inferential statistics. In inferential statistics, Analysis of variance (ANOVA), independent t-tests, paired t-tests, and repeated measures ANOVA were employed to evaluate the pregnant women's psychological status before, during, and after the intervention.

METHODOLOGY FLOW CHART


PHASE I
Selection of Area
Lakhimpur District, Assam
Government and Private hospital (5 Hospitals and 3 Subcentres)
Selection of Sample
Purposive Sampling Method
Pregnant Women of 18-40 year (N=300)
Criteria of the Sample selection
Inclusion Criteria
1st trimester pregnant women
Normal pregnancy
1st /2nd /3rd time pregnancy
Age between 18-40 years
Exclusion Criteria
Unwillingness to participate
Below 18 years and above 40 years
Pregnant women with complications
IVF/IUI pregnant women
Places other than Lakhimpur
PHASE II
Construction of Tool
Socio-demographic Profile
Pregnancy Psychological Status Scale (PPSS)
Self-constructed by referring available tools for normal population
The GAD-7 Anxiety questionnaire was designed by Spitzer et. al (2006)
State-Trait Anxiety Inventory (STAI) by Spielberger and Diaz-Guerrero (1976)
Psychological Wellbeing (42 items) (Ryff, 1989)
Articles and different Studies related to pregnancy psychological well -being
Consists of 40 statements
7 Dimensions
i.e. Happiness, Stress, Anxiety, Family relationship, Socialization, Physical health, Body image
4 point Likert Scale


PHASE III
Conduct of Study
Permission from Director of Health Services
Consent from Hospital authorities, pregnant women and their families
Detailed explanation of study and intervention package
Ethical consideration
Developing rapport with the respondents
Data analysis
Frequency and percentage
Mean, SD, t-test, repeated measures ANOVA, Correlation


PHASE IV
Development of intervention & implementation
Randomly selected (N=120) after exclusion criteria
Control (N=60)
Experimental (N=60)
Music (N=30)
Meditation (N=30)
Music (Online) (N=30)
Meditation (Offline) (N=30)
Not taking part in the intervention
4th -8th months of pregnancy with 20 music sessions
4th -8th months of pregnancy with 14 meditation sessions
Post-data collection and analysis
Data were collected from both control and experimental group in each trimester through PPSS and assessed their psychological status

RESULTS AND DISCUSSION

Major findings of the research:

- **Overall Psychological status**

Based on the overall psychological status with respect to socio-demographic factors revealed that younger age group (18-24 years) experienced poorer psychological status than the older group (25-40 years), supported by a t-value of 4.078 (p=0.001**). Education levels also played a significant role, with illiterate participants and postgraduates exhibiting significant differences in psychological status (t-value 4.677, p=0.001**). Higher monthly income (55,001-80,000) was associated with a higher mean psychological status score (mean-111.63, t-3.41, p=0.05). Planned pregnancies showed a higher mean psychological status score compared to unplanned pregnancies, supported by a t-value of 4.165 (p=0.001**). However, other variables like occupation, family type, area of living, and the number of pregnancies did not show statistically significant differences.

- **Age and dimensions of psychological status**

Based on age, it was revealed that the overall psychological status of pregnant women aged 25-40 was significantly better than those aged 18-24. The older age group reported less anxiety, higher happiness, better family relationships, improved socialization, and greater satisfaction with body image. However, stress levels and physical health were not significantly influenced by age. Pregnant women aged 18-24 reported higher anxiety levels and poorer psychological status compared to other.

- **Education dimensions of psychological status**

A significant difference between education and anxiety levels among pregnant women ($F = 5.576$, $p < 0.001$) was observed. Family relationship and socialization are also influenced by education, as indicated by significant F values ($F = 3.278$, $p = 0.05$ and $F = 2.742$, $p = 0.05$, respectively). However, happiness, stress, physical health, and body image did not significantly differ based on education levels. Overall psychological status demonstrated a highly significant F value ($F = 4.677$, $p < 0.001$), indicating that higher education positively influences overall psychological status of pregnant women, potentially due to enhanced coping skills, access to resources, and a sense of control.

- **Occupation dimensions of psychological status**

Findings highlighted a significant difference among occupation based on overall psychological status among pregnant women ($F = 3.02$, $p < 0.005$). Government employees showed higher mean scores (mean=109.46, SD=10.64) compared to housewives and private employees, indicating better psychological status. Family relationship also displayed

significant differences among government-employed pregnant women, showing improved family relationships. However, happiness, stress, anxiety, physical health, and body image did not significantly differ based on occupation. The study indicates that government-employed pregnant women benefit from better family and social support, financial independence, especially amid the COVID crisis.

- **Income dimensions of PS**

Based on the income, overall psychological status was found to be significant ($F = 3.41$, $p = 0.05$). Family relationships are also influenced by income levels ($F = 5.27$, $p < 0.001$). However, 55,001-80,000 income group exhibited better psychological status and higher satisfaction with family relationships compared to other income groups. However, no significant differences were observed in happiness, stress, anxiety, socialization, physical health, and body image based on income.

- **Type of family dimensions of PS**

Significant differences in stress and socialization between pregnant women in nuclear and joint families (p-values: 0.035 and 0.030, respectively) were observed. Pregnant women in nuclear families showed slightly higher stress-coping abilities and better socialization. However, no significant differences were observed in happiness, anxiety, family relationships, physical health, and body image based on family type. The study observed that nuclear families might offer advantages in stress management and social interactions for pregnant women compared to joint families.

- **Type of pregnancy dimensions of PS**

Planned or unplanned pregnancy and various dimensions of psychological status among pregnant women were found to be significant. Planned pregnancies are linked to better psychological status, higher happiness, lower anxiety, effective stress management, improved family relationships, and enhanced socialization indicating that the intentional nature of planning positively impacts various aspects of psychological status, contributing to a more stable and positive pregnancy experience, while unplanned pregnancies face challenges in adjustment, financial, and emotional readiness.

- **Area of living and Number of pregnancies with dimensions of psychological status**

With respect to area of living and number of pregnancies, overall psychological status of pregnant women did not find significant relationship. In case of number of pregnancies, women who attempted for 2^{nd} time pregnancy were satisfied with their body image than 1^{st} and 3^{rd} pregnancy.

Major findings of music and meditation intervention group in pre and post-test

- The pre and post test results of the music experimental group showed significant differences (p=0.05) based on overall psychological status of pregnant women. The post-test results showed that women were happier, less stress and anxious, and had a satisfaction with their physical health than pre-test results. However, music control group did not show significant differences. But family relationship and socialization were positively significant. Body image was found to have a negative relationship on psychological status of pregnant women during the post-test analysis.
- The pre and post test results of the meditation experimental group showed highly significant differences (<0.001) on overall psychological status of pregnant women. The post-test results showed that women were happier, less stress and anxiety, experienced good family relationships, had a satisfaction with their physical health than pre-test results. However, meditation control group did not show significant differences. But happiness dimension was found to have negatively significant on psychological status of pregnant women during the post-test analysis.

Major findings of music and meditation intervention group based on trimester

- The repeated measures test showed significant differences at <0.005 among the pregnant women of the music experimental group. Based on the trimester, gradual improvements in their psychological status were observed in the third trimester as the mean value was high (mean=113.10).
- The repeated measures test showed positive significant differences (<0.001) among the pregnant women of the meditation experimental group. Based on the trimester, the mean value was high (mean=119.00) during third trimester, hence proved that their psychological status had improved.

CONCLUSION

The study concludes that both meditation and music interventions were effective in enhancing the psychological well-being of pregnant women. The results revealed increased happiness, reduced stress and anxiety, improved family relationships, and greater satisfaction with physical health among participants in both the music and meditation groups. Interestingly, there was no significant difference observed between the effectiveness of meditation and music interventions, indicating that each intervention had its own unique positive impact on pregnant women. Remarkably, meditation showed a particularly positive effect on family relationships. In summary, the findings highlight to design the interventions which positively influence the psychological status of pregnant women and also recommends further studies could be done with larger sample size and also to cover post-partum period.

IMPLICATIONS

- This study will help to conduct music and meditation intervention or counselling sessions for pregnant women in hospitals.
- The results may be useful for the further generations to get awareness on their health.
- This study would be helpful to conduct workshops, conferences, and seminars to have better emotional and psychological health among pregnant women.
- An educational awareness program can be organized to train the health workers including doctors, nurses, about the use of music and meditation during pregnancy.
- Policy decisions can be taken by all health care departments especially under women and child development to have these kinds of intervention programmes as a mandatory course in each trimester for the wellbeing of women and growing child.

LIMITATIONS

- ✓ After pilot study(N-66) during 2019, again the data collection and intervention were carried out immediately after the second wave of COVID-19, is the main limitation.
- ✓ Limited access to data as this study is initially to be collected during the first trimester, and most of them did not respond.
- ✓ As the pregnancy period itself is 8 to 9 months, I have limited period to cover the intervention (4^{th} month to 8^{th} month) and it is vulnerable group many did not agree to continue.
- ✓ The study focused on the psychological status of pregnant women within a specific district of Assam. Consequently, the findings cannot be generalized to encompass the psychological status of all pregnant women across India, as variations in individual, socio-economic status, geographical factors may influence the results.

REFERENCES

Bastani, F., Hidarnia, A., Kazemnejad, A., Vafaei, M., & Kashanian, M. (2005). A randomized controlled trial of the effects of applied relaxation training on reducing anxiety and perceived stress in pregnant women. *Journal of midwifery & women's health*, *50*(4), e36-e40.

Carolan, M., Barry, M., Gamble, M., Turner, K., & Mascarenas, O. (2012). The Limerick Lullaby project: an intervention to relieve prenatal stress. *Midwifery*, *28*(2), 173-180.

Chang, S. C., & Chen, C. H. (2005). Effects of music therapy on women's physiologic measures, anxiety, and satisfaction during cesarean delivery. *Research in nursing & health*, *28*(6), 453-461.

Dhillon, A., Sparkes, E., & Duarte, R. V. (2017). Mindfulness-Based Interventions During Pregnancy: A Systematic Review and Meta-analysis. *Mindfulness*, *8*(6), 1421–1437.

Eren, H., Canbulat Şahiner, N., Bal, M. D., & Dişsiz, M. (2018). Effects of music during multiple cesarean section delivery.

Kalaivani S. Effectiveness of Music Therapy on Stress among pregnant mothers in selected areas of Madurai District. Masters thesis, Sacred Heart Nursing College, Madurai. 2011.

Kulkarni, S.R. (2018). A Clinical Study of the Music Therapy in (Garbhini). *International Ayurvedic Medical Journal*, 6(12), 2595-603.

Kumari, A., Pandey, A., & Rao, R. (2022). Yoga and pranayama during pregnancy. *Indian Journal of Agriculture and Allied Sciences*, 3(2), 47-52.

Kumari, K. & Acharya, A. (2018) Effect of music therapy on Hamilton Anxiety Score in pre-hypertensive women in the third trimester of pregnancy. *Indian Journal of Applied Research*, 8(1):60-6.

Laopaiboon, M., Lumbiganon, P., Martis, R., Vatanasapt, P., & Somjaivong, B. (2009). Music during caesarean section under regional anaesthesia for improving maternal and infant outcomes. *The Cochrane database of systematic reviews*, (2), CD006914.

Lima, A.A., Krey, P.S.P., Fachini, M.F., et al. (2014). Efeitos da musicoterapia sobre a ansiedade em parturientes.*Rev Eletrônica Enferm Vale Paraíba,*1(06), 83–93.

Novelia, S., Wenny Sitanggang, T., & Yulianti, A. (2018). Effects of yoga relaxation on anxiety levels among pregnant women. *Nurse Media Journal of Nursing*, 8(2), 86-95.

Nwebube, C., Glover, V., & Stewart, L. (2017). Prenatal listening to songs composed for pregnancy and symptoms of anxiety and depression: a pilot study. *BMC complementary and alternative medicine*, *17 (256)*, 1-5.

Nyklicek, I., Truijens, S. E., Spek, V., & Pop, V. J. (2018). Mindfulness skills during pregnancy: prospective associations with mother's mood and neonatal birth weight. *Journal of psychosomatic research*, *107*, 14-19.

Ramesh, B., Sundar, S., Ghose, S., & Gem, E. (2020). Evaluating the effect of music therapy on the establishment of lactogenesis and maternal breastfeeding satisfaction levels. *Int Journal of Med Heal Res*, *6*(6), 5.

Sarojini S & Komalavalli T. Effect of Mindful Based Stress Reduction Programme on Prenatal Stressamong Antenatal Mothers in Preventing the Occurrence of Postpartum Blue at Selected Hospitals Puducherry. Department of Nursing, Meenakshi Academy of Higher Education and Research.2020;155.

Schetter, C. D., & Tanner, L. (2012). Anxiety, depression and stress in pregnancy: implications for mothers, children, research, and practice. *Current opinion in psychiatry*, *25*(2), 141.

Teckenberg-Jansson, P., Turunen, S., Pölkki, T., Lauri-Haikala, M. J., Lipsanen, J., Henelius, A., & Huotilainen, M. (2019). Effects of live music therapy on heart rate variability and self-reported stress and anxiety among hospitalized pregnant women: A randomized controlled trial. *Nordic Journal of Music Therapy*, *28*(1), 7-26.

Ventura, T., Gomes, M. C., & Carreira, T. (2012). Cortisol and anxiety response to a relaxing intervention on pregnant women awaiting amniocentesis. *Psychoneuroendocrinology*, *37*(1), 148-156.

Yuksel, H., Cayir, Y., Kosan, Z., & Tastan, K. (2017). Effectiveness of breathing exercises during the second stage of labor-on-labor pain and duration: a randomized controlled trial. *Journal of integrative medicine*, *15*(6), 456-461.

Publications:

1. Sharanoor, H and Priya, M. 2023. Factors influencing mental and psychological health during pregnancy. The Journal of Research ANGRAU. 51 (2): 134-142. DoI: https://doi.org/10.58537/jorangrau.2023.51.2.15
2. Sharanoor Hussain & Priya M. 2023. Effectiveness of music intervention on psychological status of pregnant women. The Indian Journal of Home Science, 35(2): 415-425.
3. Sharanoor, H and Priya M. 2023. Meditation and music intervention for improving pregnancy psychological health. Yoga Mimamsa, 55 (2): 88-94. Doi: 10.4103/ym.ym_34_23